Remarks

Claims 1-9, 11, 15-17, and 19 have been amended with the details set forth in Attachment I (Version with Markings to Show Changes Made). Non-elected Claim 10 has been cancelled.

Restriction Requirement

Applicants affirm the election of Claims 1-9 and 11-20 (Group I). Non-elected Claim 10 has been cancelled without prejudice to the filing of a divisional application covering the method of Claim 10.

Objection To Specification

In view of the amendment of Claim 1 to remove the Jepsen type format, this objection has been overcome.

Claim Objections

The objections to Claims 4, 5 and 11 are believed overcome by the amendments to these claims.

The 35 USC 112 Rejection

Claims 2-5, 11 and 17 are rejected under 35 USC 112, second paragraph, as being indefinite. Each of the objections is believed to have been overcome by the amendments to these claims. Thus, this rejection should be withdrawn.

The 35 USC 103 Rejections

Claims 1-3, 6-9 and 12-17 are rejected under 35 USC 103(a) as unpatentable over Mogensen in view of EP'356 and Wallin. These references when combined and taken as a whole, fail to teach or suggest, either expressly or impliedly, the features

of these claims, particularly as now amended. None of these references teach or suggest the claimed 400-700°C operating temperature. Thus, this rejection should be withdrawn.

Claims 4 and 5 are rejected under 35 USC 103(a) as unpatentable over Mogensen in view of EP'356 and Wallen taken further in view of Visco or Mazanec. Neither of the two terenary references teach the features lacking in the primary and secondary references as discussed above relative to parent Claim 1. Thus this rejection should be withdrawn.

Claim 18 is rejected under 35 USC 103(a) as unpatentable over Mogensen in view of EP'356 and Wallin, taken forth in view of Yajima. Claim 18 depends from Claims 17 and 12, and Yajima fails to teach the features lacking in the primary and secondary references as discussed above relative to parent Claims 17 and 12. Also, where in this reference is taught the specific electrolyte as recited in Claim 18? This ground of rejection should be withdrawn.

Claims 11 and 19-20 are rejected under 35 USC 103(a) as unpatentable over Mogensen in view of EP'356, Wallin and Yajima, taken further in view of Kuo and Weber et al. Claim 11 depends from Claim 1 and Claims 19 and 20 depend from Claims 18, 17 and 12. Where are the specific materials recited in Claims 11, 19 and 20 found in the references Kuo and Weber et al? Further, where is there a teaching or suggestion in either of these last cited references which teach the features lacking in Mogensen, EP'356, and Wallin, as discussed above relative to parent Claims 1 and 12? Applicants are unable to find such teachings in any of the applied references, and the Examiner is called upon to specifically point out where in these references the claimed features are taught or suggested. It is submitted that this rejection is improper and should be withdrawn.

Conclusion

In view of the amendments to the specification and claims and the foregoing comments, it is submitted that each objection and rejection has been overcome. Thus, this application is believed to be in condition for allowance based on Claims 1-9 and 11-20. Non-elected Claim 10 has been cancelled.

Respectfully submitted,

Dated: 1-14-03

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Enclosure:
Attachment I

Attachment I
S. N. 09/636,134
Version with Markings to Show Changes Made

In the Claims:

Claims 1-9, 11, 15-17, and 19, amend to read as follows:

1. (Amended) [In a] A solid oxide fuel cell operating at a temperature in the range of 400-700°C, [the improvement] comprising;

an anode including doped-ceria,

an electrolyte including doped-ceria, based and

a cathode including cobalt iron based materials[.], whereby the fuel cell operates in the temperature range of 400-700°C.

2. (Amended) The [improvement] fuel cell of Claim 1, wherein said anode is composed of NiO and doped-ceria [NiO/doped-ceria].

3. (Amended) The [improvement] fuel cell of Claim 1, wherein said doped-ceria includes dopants [doping elements] selected from the group consisting of samarium oxide, gadolinium oxide, yttria oxide, and lanthanide oxide.

4. (Amended) The [improvement] fuel cell of Claim 1, wherein said fuel cell includes pores created by a pore former [to create pores therein].

5. (Amended) The [improvement] fuel cell of Claim 4, wherein said [pore] pores are formed [is] by a pore former selected from the group consisting of starch and carbon.

6. (Amended) The [improvement] fuel cell of Claim 1, wherein said electrolyte comprises material selected from the group consisting of doped-ceria, doped-zirconia with a thin layer of doped-ceria, and doped-ceria and[/]doped-zirconia.

7. (Amended) The [improvement] fuel cell of Claim 1, wherein said electrode is selected from the group consisting of (La, Sr)(Co, Fe) O_3, and (La, Ca) (Co, Fe, Mn)O_3.

8. (Amended) The [improvement] fuel cell of Claim 1, wherein said doped-ceria in said electrolyte is produced by colloidal spray deposited doped-ceria, or aerosol spray casting.

9. (Amended) The [improvement] fuel cell of Claim 1, wherein said cobalt iron based material is deposited by colloidal spray deposition or aerosol spray casting.

Claim 10, cancel.

11. (Amended) The [improvement] fuel cell of Claim 1, wherein the cathode [additionally including forming an] electrode of the fuel cell comprises material composed of [cell from] cobalt, iron, manganese based material formed by colloidal spray deposition.

15. (Amended) The fuel cell of Claim 12, wherein said fuel is hydrogen, and has [wherein] a power output of up to 400mW/cm^2 [is produced] at an operating temperature of 550°C.

16. (Amended) The fuel cell of Claim 12, wherein said fuel is methane, and has [wherein] a power output of 320mW/cm^2 [is produced] at an operating temperature of 500°C.

17. (Amended) The fuel cell of Claim 12, wherein said anode comprises NiO and[/] doped-ceria.

19. (Amended) The fuel cell of Claim 18, wherein said electrode is selected from the group consisting of [comprises (La, Sr) (Co, Fe, Mn)O_3] (La, Ca) (Co, Fe)O_3 and (La, Ca) (Co, Fe, Mn)O_3.